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# *Indian Standard*

# SPECIFICATION FOR DIAZINON GRANULES

( First Reprint SEPTEMBER 1996 )

UDC 632.951 DIAZINON : 632.981.22

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**BUREAU OF INDIAN STANDARDS**
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

**Gr 2** *August* 1980

# *Indian Standard*
# SPECIFICATION FOR DIAZINON GRANULES

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# AMENDMENT NO. 1 MARCH 1983

# TO

# IS : 9369-1980 SPECIFICATION FOR DIAZINON GRANULES

## Alterations

( *Page* 4, *clause* 2.2.1 ) — Substitute the following for the existing clause:

'2.2.1 *Description* — The product shall consist of dry, free flowing granules, free from visible extraneous matter and dust except for the amount specified ( *see* 2.2.3 ). It may contain added colouring matter.'

( *Page* 4, *clause* 2.2.2, *heading* ) — Substitute ' *Sieving Requirements* ' for ' *Particle Size* '.

( *Pages* 4 *and* 5, *clauses* 2.2.2, 2.2.3, 2.2.5 *and* 2.3.2 ) — Substitute ' IS : 6940-1982† ' *for* ' IS : 6940-1973† ' wherever it occurs.

( *Pages* 4 *and* 5, *foot-note with* ' † ' *mark* ) — Substitute the following for the existing foot-notes:

'Methods of test for pesticides and their formulations ( *first revision* ).'

( *Page* 4, *clause* 2.2.2.1 ) — Substitute the following for the existing clause:

'2.2.2.1 The ratio of lower to upper limit of the sieve sizes given under 2.2.2 shall not exceed 1 : 3.'

( *Page* 4, *clause* 2.2.3.1 ) — Delete.

( *Page* 4, *clause* 2.2.4.1, *line* 1 ) — Substitute ' 24 hours ' *for* ' 14 days '.

## Addendum

( *Page* 4, *clause* 2.2.3 ) — Add the following matter at the end of 2.2.3:

'The material retained on the sieve should comply with the requirements of 2.3.1.'

( AFCDC 6 )

Reprography Unit, BIS, New Delhi, India

# AMENDMENT NO. 2 MARCH 1989
## TO
# IS : 9369 - 1980 SPECIFICATION FOR DIAZINON GRANULES

( *Page* 5, *clause* **2.3.1** ) — Substitute the following for the existing clause:

'**2.3.1** *Diazinon Content* — When determined by the method prescribed in Appendix A, the observed diazinon content, percent ( *m/m* ) of any of the samples shall not differ from the nominal value by more than the percent tolerance applied to the declared nominal value as given below:

| *Nominal Value, Percent* | *Tolerance* | |
|---|---|---|
| Up to 9 | + 10<br>− 5 | percent of the nominal value |
| Above 9 and below 50 | ± 5 | percent of the nominal value |
| 50 and above | + 5<br>− 3 | percent of the nominal value |

( *Page* 5, *clause* **2.3.2** ) — Substitute the following for the existing clause:

"**2.3.2** *Acidity or Alkalinity* — When tested by the method prescribed in **11.3** of **IS** : 6940-1982 'Methods of test for pesticides and their formulations ( *first revision* )', the acidity ( as $H_2SO_4$ ) or alkalinity ( as $N_aOH$ ) of the material shall be not more than 0·1 and 0·5 percent by mass respectively."

( *Page* 6 ) — Add the following new Appendix after **5.2**:

## APPENDIX A

( *Clause* 2.3.1 ) .

## DETERMINATION OF DIAZINON CONTENT

### A-0. PRINCIPLE

**A-0.1** The method consists of injecting a sample in the gas chromatograph and determining its peak area. The area under the peak is proportional to the mass of the sample. By comparison of this area with that of the standard reference material of known purity, the percentage purity, of the sample is determined.

### A-1. APPARATUS

**A-1.1 Gas Chromatograph** — equipped with a thermal conductivity **detector** ( TCD ), a recorder and a disc integrator ( optional ) operating on the following suggestive parameters. These parameters can be varied depending instrument, provided standardization is done:

| | |
|---|---|
| Column | Glass 1 200 mm × 0·63 o.d. packed with 5 percent SE-30 on chromosorb W, AW or DMCS, 60-80 mesh |
| Temperature column | 170°C |
| Injection port | 200°C |
| Detector | 200°C |
| Carriage gas | Hydrogen or nitrogen or helium |
| Pressure | 1 to 1·5 kg/cm$^2$ |

**A-1.2 Microsyrirge** — 50 $\mu$l capacity.

## A-2. REAGENTS

### A-2.1 Acetone

## A-3. PROCEDURE

**A 3.1 Preparation of Standard Solution** — Weigh 0·1 g of standard reference diazinon into a 10 ml volumetric flask and dissolve in acetone to the mark.

**A-3.2 Preparation of Sample Solution** — Weigh accurately a sample containing 0·5 g of diazinon into a 500 ml glass stoppered conical flask. Add accurately 250 ml of acetone and stopper the flask. Swine the flask occasionally and keep for 30 minutes. Take out the supernatant liquid into a 10 ml volumetric flask and fill up to the mark.

**A-3.3 Analysis of Sample** — Check the chromatograph for thermal and flow equilibrium. Inject 15 to 25 $\mu$l of standard solution followed by sample solution alternatively at least thrice. Measure the peak height or area with reference to the sample as well as standard.

## A-4. CALCULATION

$$\text{Diazinon content, percent by mass} = \frac{M_2 \times A_1 \times P}{A_2 \times M_1}$$

where

$M_2$ = mass, in g, of standard injected;

$A_1$ = peak height or area corresponding to diazinon sample;

$P$ = purity of standard diazinon;

$A_2$ = peak height or area corresponding to standard diazinon; and

$M_1$ = mass, in g, of sample injected.

( AFCDC 6 )

Reprography Unit, BIS, New Delhi, India

# AMENDMENT NO. 3 MAY 1994
# TO
# IS 9369 : 1980 SPECIFICATION FOR DIAZINON GRANULES

( *Page* 4, *clauses* **2.2.4** *and* **2.2.4.1** ) — Delete.

( *Page* 6, *clause* **4.1** ) — Substitute the following for the existing:

'When freshly manufactured material in bulk quantity is offered for inspection, representative samples of the material shall be drawn and tested as prescribed in IS 10627 : 1983 within 90 days of its manufacture. When the material is offered for inspection after 90 days of its manufacture, sampling shall be done as prescribed in IS 10627 : 1983. However, the criteria for conformity of the material when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under clause **2.3.1** of the standard.'

( FAD 1 )

Reprography Unit, BIS, New Delhi, India

# *Indian Standard*

# SPECIFICATION FOR DIAZINON GRANULES

## 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 7 February 1980, after the draft finalized by the Pest Control Sectional Committee had been approved by the Agricultural and Food Products Division Council and the Chemical Division Council.

**0.2** Diazinon granules are used for control of insect pests of medical, veterinary and agricultural importance.

**0.3** Diazinon granules are generally manufactured to contain 5 or 10 percent ( *m/m* ) of diazinon.

**0.4** In the preparation of this standard due consideration has been given to the provisions of the Insecticides Act, 1968 and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these wherever applicable.

**0.5** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## 1. SCOPE

**1.1** This standard prescribes the requirements and the methods of sampling and test for diazinon granules.

## 2. REQUIREMENTS

**2.1 Constituents** — The material shall consist of diazinon technical as the only active ingredient impregnated on suitable carrier(s) together with binder(s), stabilizer(s) and/or other formulants.

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*Rules for rounding off numerical values ( *revised* ).

**2.1.1** Diazinon technical, employed in the formulation of this material shall conform to IS : 1833-1980*.

**2.2 Physical** — The material shall comply with the physical requirements specified in **2.2.1** to **2.2.5**.

**2.2.1** *Description* — The product shall consist of dry, free flowing granules, free from visible extraneous matter and dust except for the amount specified ( *see* **2.2.3** ). It may contain added colouring matter. When dusted from a granule applicator, the material shall come freely without clogging or bridging the apparatus.

**2.2.2** *Particle Size* — Not less than 97 percent by mass of the product shall pass through a test sieve having a mesh size of the upper declared limit and not more than 5 percent by mass of the product shall pass through a test sieve having a mesh size of lower declared limit when determined by the method described in **12.1** of IS : 6940-1973† [ *see* **3.2**( a )].

**2.2.2.1** The ratio of lower to upper particle sizes shall not exceed 1 : 2.

**2.2.3** *Dust* — When determined by the method described in **12.1** of IS : 6940-1973†, not more than 1 0 percent by mass of the product shall pass through 75-micron IS Sieve [ *see* IS : 460 ( Part I )-1978‡ ].

**2.2.3.1** The portion passing through this sieve shall not contain more than 8 percent by mass of the declared nominal active ingredient when determined by the method described in Appendix A of IS : 1833-1980*.

**2.2.4** *Storage Stability*

**2.2.4.1** *Heat stability* — After storage at 54 ± 2°C for 14 days the product shall continue to comply with the requirements of **2.2.1** to **2.2.3**, **2.3.1** and **2.3.2**.

**2.2.5** *Moisture Content* — When determined by the method prescribed in **4** of IS : 6940-1973†, the moisture content of the material shall not exceed 4·0 percent by mass.

**2.3 Chemical** — The material shall comply with the chemical requirements specified in **2.3.1** and **2.3.2**.

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*Specification for diazinon, technical ( *first revision* ).

†Methods of tests for pesticides and their formulations.

‡Specification for test sieves: Part I Wire cloth test sieves ( *second revision* ).

**2.3.1** *Diazinon Content* — When determined by the method prescribed in Appendix A of IS : 1833-1980*, the observed diazinon content, percent ( *m*/*m* ) of any of the samples shall not differ from the nominal value by more than the percent tolerance applied to the declared nominal value as given below:

| *Nominal Value, Percent* | *Tolerance* | |
|---|---|---|
| Up to 9 | + 10<br>− 5 | percent of the nominal value |
| Above 9 and below 50 | ± 5 | |
| 50 and above | + 5<br>− 3 | |

**2.3.1.1** The actual value of the diazinon content in the formulation shall be calculated to the second decimal place for rounding off to the first decimal place before applying the tolerances given in **2.3.1.**

**2.3.1.2** The average content of all samples taken shall not be lower than the nominal content.

**2.3.2** *Acidity* — When tested by the method prescribed in **11.3** of IS : 6940-1973†, the acidity ( as $H_2SO_4$ ) of the material shall be not more than 0·1 percent by mass.

## 3. PACKING AND MARKING

**3.1 Packing** — The material shall be packed as per requirements given in IS : 8190 ( Part I )-1980‡.

**3.2 Marking** — The containers shall bear legibly and indelibly the following information and any other information as is necessary under the Insecticides Act and Rules:

a) Name of the material and particle size ( *see* **2.2.2** );
b) Name of the manufacturer;
c) Date of manufacture;
d) Batch number;
e) Net mass of the contents;
f) Nominal diazinon content, percent ( *m*/*m* ); and
g) The cautionary notice worded as in the Insecticides Act and Rules.

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*Specification for diazinon, technical ( *first revision* ).

†Methods of tests for pesticides and their formulations.

‡Requirements for packing of pesticides: Part I Solid pesticides ( *first revision* ).

### 3.3 BIS Certification Marking

The product may also be marked with Standard Mark.

3.3.1 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

## 4. SAMPLING

4.1 Representative samples of the material shall be drawn as prescribed in 'Indian Standard methods for sampling of pesticides and their formulations' ( *under preparation* ).

NOTE — Till such time the standard under preparation is published, the samples shall be drawn as agreed to between the concerned parties.

## 5. TESTS

5.1 Tests shall be carried out by the appropriate methods referred to in 2.2.1 to 2.2.5, 2.3.1 and 2.3.2.

5.2 **Quality of Reagents** — Unless specified otherwise, pure chemicals and distilled water ( *see* IS : 1070-1977* ) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

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*Specification for water for general laboratory use ( *second revision* ).

( *Continued from page 2* )

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